

TM 5-4220-201-12

TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL
MAINTENANCE MANUAL
LIFE PRESERVER, UNDERARM,
PARACHUTIST, TYPE B-7,
CO. INFLATED
FSN 4220-657-2197

This copy is a reprint which includes current pages from Changes 1

HEADQUARTERS DEPARTMENT
OF THE ARMY

DECEMBER 1970

CHANGE }
No. 1 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 15 March 1974

Operator and Organizational Maintenance Manual

**LIFE PRESERVER, UNDERARM
PARACHUTIST, TYPE B-7,
CO₂ INFLATED
FSN 4220-657-2197**

TM 5-4220-201-12, 8 December 1970, is changed as follows:

Page 1-3, paragraph 1-3. Lines 3 and 4 are changed to read: "Army Troop Support Command, ATTN: AMSTS-MPP, 4300 Goodfellow Boulevard, St."

Page 3-3, table 3-1. Delete "Para 3-4" in the "Reference" column.

Page 4-3, paragraph 4-2e. After the last sentence, add: "The gross weight marked on the CO₂ cylinder normally is indicated in ounces. The conversion factor from grams to ounces is: 28.35 grams = 1 ounce."

Page 4-5. Paragraph 4-3 is superseded as follows:

"4-3. General

Special tools are indicated in the maintenance allocation chart."

Page 4-6, paragraph 4-4. In line 1, after *supplies*, add: "and equipment".

Page 4-7, table 4-1. The legend is changed to read, "Table 4-1. Maintenance Supplies and Equipment."

In table 4-1, add the following:

Item	FSN	Reference		Remarks
		Fig No	Para No	
Scale, Beam, Gram Graduation, 21.100 Max. Capacity. PN 1119 MFC 85973	6670-514-4117		4-2	Weigh CO ₂ Cylinders

Page 4-11, table 4-2. Change format to include the "W" in the "Org" column instead of the "Operator" column; and change the "X" under the "90/120 Days" to read "1".

Page 4-13, paragraph 4-8a(1). In line 4, change "hand" to read "handle".

Page 4-17, paragraph 4-14d. In line 3, after *thread*, add: "(Table 4-1)".

Subparagraph i. In line 3, after *thread*, add: "(Table 4-1)".

Page B-1, paragraph B-1c. In line 2, delete "Not applicable".

Page B-4, paragraph B-2d. In lines 4 and 5, delete "Not applicable".

Paragraph B-3 is superseded as follows:

a. Reference Code. This column consists of a number and a letter separated by a dash entered from column 4 on the MAC. The number references the special tools and test equipment requirements and the letter represents the specific maintenance function the item is to be used with. The letter is representative of columns A through K on the MAC.

b. Maintenance Category. This column shows the lowest level of Maintenance authorized to use the special tools or test equipment.

c. Nomenclature. This column lists the name or identification of the tools or test equipment.

d. Tool Number. This column lists the manufacturer's code and part number, or Federal Stock Number of tools and test equipment."

Paragraph B-4 is added as follows:

B-4. Explanation of Columns in Section IV

a. Reference Code. This column consists of two letters separated by a dash, both of which are references to section II. The first letter references column 5 and the second letter references a maintenance function, column 3, A through K.

b. Remarks. This column lists information pertinent to the maintenance function being performed, as indicated on the MAC, section II.

Page B-5, Section II. In Column 4, second entry, change "—————" to read "1-B".

TEST EQUIPMENT REQUIREMENTS

Reference Code	Maintenance Category	Nomenclature	
1-B		Scale, Beam, Gram Graduation 21,100 Maximum capacity	FSN 6670- 514-4117 PN 1119 MFC 85973

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 8 December 1970

**OPERATOR AND ORGANIZATIONAL
MAINTENANCE MANUAL**

**LIFE PRESERVER, UNDERARM, PARACHUTIST,
TYPE B-7, CO₂, INFLATED
FSN 4220-657-2197**

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Purpose and Scope

This manual is for your use in operating and maintaining the Type B-7 parachutist, underarm, life preserver (fig. 1-1). This preserver is an item of primary survival equipment designed to be worn by paratroopers making extended or sustained overwater flights. In addition, the preserver is worn whenever a jump is made within one mile of a large body of water.

1-2. Maintenance Forms and Records

Maintenance forms and records that you are required to use are explained in TM 38-750.

1-3. Recommending Improvements

You can improve this manual by recommending improvements using DA Form 2028 (Recom-

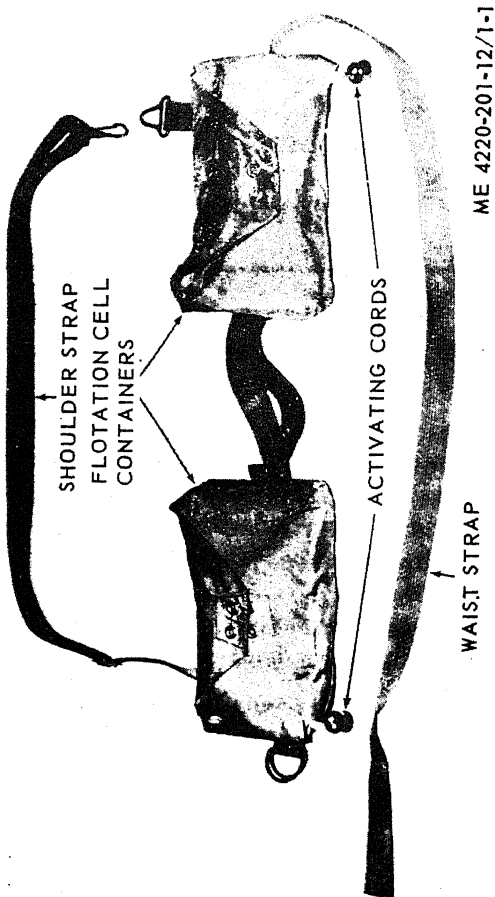


Figure 1-1. Type B-7 parachutist, underarm, life preserver.

mended Changes to Publications), or a letter, and mail direct to the Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo., 63120. A reply will be furnished direct to you.

1-4. Destruction of Army Materiel to Prevent Enemy Use

Refer to chapter 5 for instructions on destroying the B-7 life preserver.

Section II. DESCRIPTION AND DATA

1-5. Description

The type B-7 underarm life preserver (fig. 1-2 and 1-3) consists of two rubber-coated, fabric, flotation cells (fig. 1-4) each packed into a container. The container is attached to an adjustable harness which secures the preserver to the body. The preserver has sufficient buoyancy to support a 300-pound load. The life preserver is inflated with CO₂ (carbon dioxide) gas. Two CO₂ cylinders (fig. 1-5), one for each flotation cell, are provided for this purpose.

1-6. Tabulated Data

a. Type B-7 Life Preserver.

Specification -----MIL-I-52052C (ME)

FSN -----4220-657-2197

b. Carbon Dioxide Cylinder.

Specification -----MIL-C-52053

Charge -----2 ounce CO₂, Fed Spec
BB-C-101

Dimensions -----1 1/2-in. diameter X 4 1/2-in.
long

FSN -----4220-837-3322

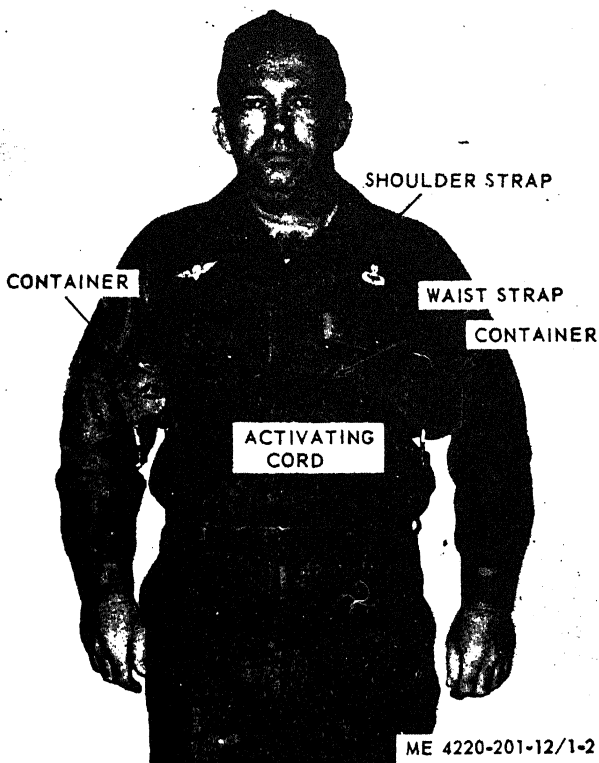


Figure 1-2. Type B-7 underarm life preserver, front view.

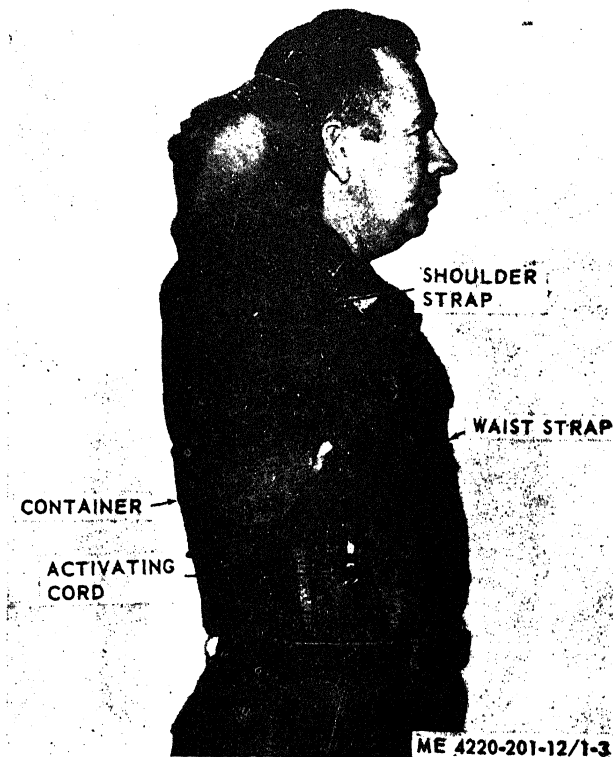


Figure 1-3. Type B-7 underarm life preserver, side view.

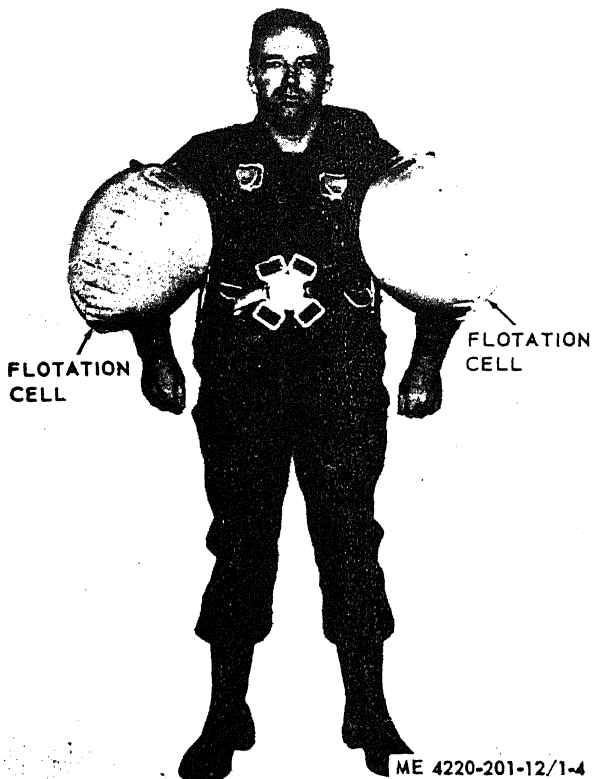


Figure 1-4. Inflated flotation cells.

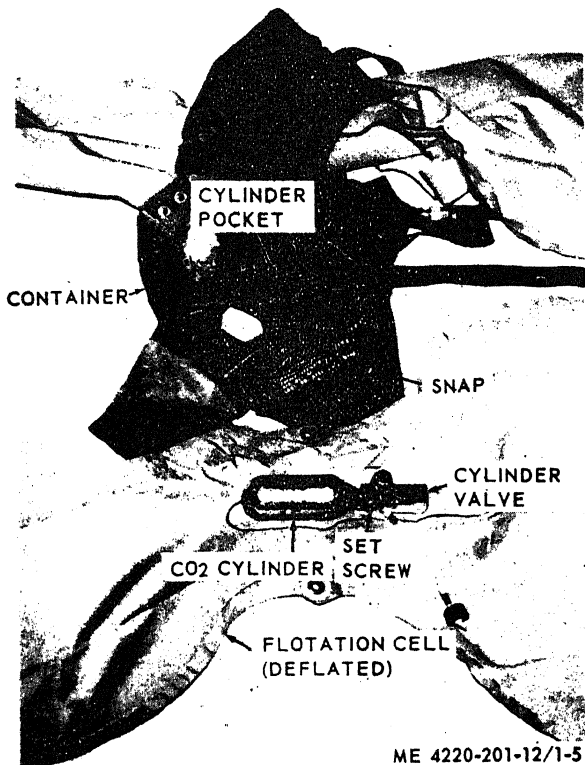


Figure 1-5. CO₂ cylinder, deflated flotation cells, and container.

CHAPTER 2

OPERATING PROCEDURES

2-1. General

a. The instructions in this section are for the information and guidance of personnel responsible for operation of the life preserver.

b. The operator must know how to perform every operation of which the life preserver is capable. This section contains instructions on fitting and adjusting, inflating, and deflating the B-7 life preserver.

WARNING

Fit and adjust the life preserver prior to donning the parachute harness.

2-2. Fitting and Adjusting

When a life preserver is issued, it should be fitted to the wearer as follows:

a. Adjust the position of the flotation cell containers on the waist strap so that a container will be directly beneath each armpit (fig. 2-1).

b. Pass the shoulder strap behind the neck and fasten the snap to the triangle link (fig. 2-2) attached to the strap on the right container.

c. Adjust the strap so that the containers fit snugly under the armpits (fig. 2-1).

d. Pass the free end of the waist strap through the D-rings on the left container and adjust the strap snugly around the waist (fig. 2-3).

e. Refit the preserver as outlined above whenever a change is made in the bulk of the wearer's clothing.

WARNING

Make sure the cell containers are positioned outside the parachute harness webbing. Do not wear preserver under any clothing.

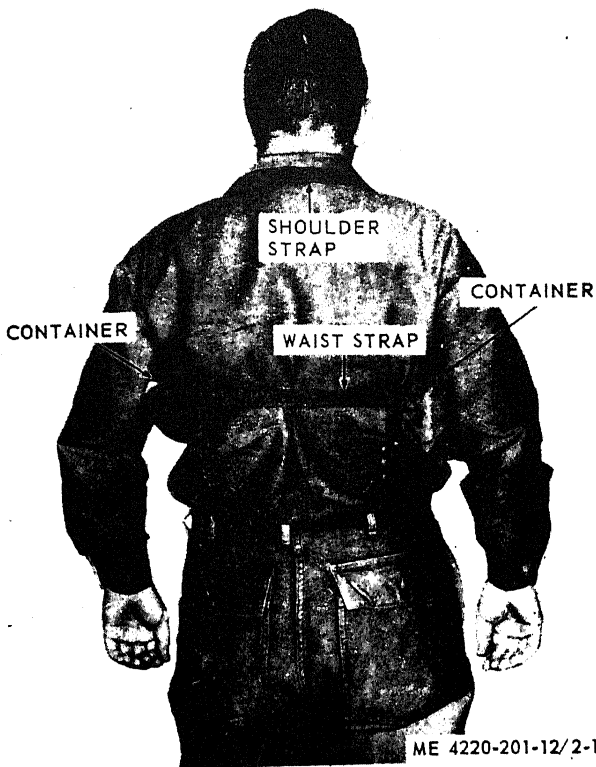
f. After the preserver is properly adjusted, put on the parachute harness (fig. 2-4 and 2-5).

2-3. Inflating the Life Preserver

a. The life preserver is inflated with carbon dioxide (CO_2) gas. Two CO_2 cylinders (one for each cell) are provided for this purpose.

b. Inflate the cells as follows:

(1) Pull forward the activating cord (fig. 2-6) which enters from the front corner of each container. This will activate the piercing pins



*Figure 2-1. Type B-7 underarm life preserver,
rear view.*

and puncture the caps of the CO₂ cylinders. The inflating cells will force open the containers.



ME 4220-201-12/2-2

Figure 2-2. Attaching shoulder strap to right container strap.



ME 4220-201-12/2-3

Figure 2-3. Fastening waist strap.

(2) When necessary, additional inflation can be effected by opening the mouth inflation valve (fig. 2-7) and blowing air by mouth.

NOTE

As rubberized fabric will not retain the gas indefinitely, two mouth inflation valves, one for each flotation cell, are provided as a means to compensate for leakage.

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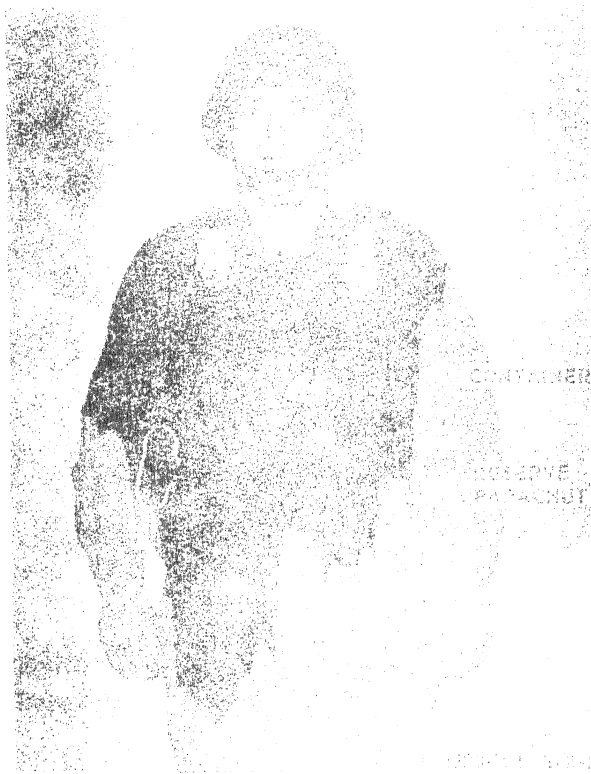


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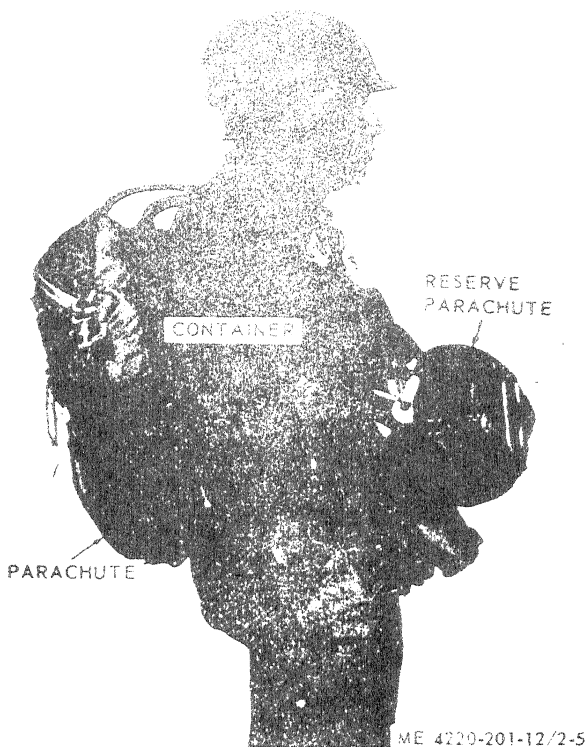


Figure 2-5. Type II life preserver with parachute harness, side view.



Figure 2-6. Activating cord (pull) for CO₂ cylinder.

2-4. Deflating the Life Preserver

a. Deflation is accomplished by either of two methods:

(1) Depress the mouth inflation valve (fig. 2-7) and roll the flotation cell toward the mouth inflation valve.

(2) Apply a vacuum to the depressed mouth inflation valve.

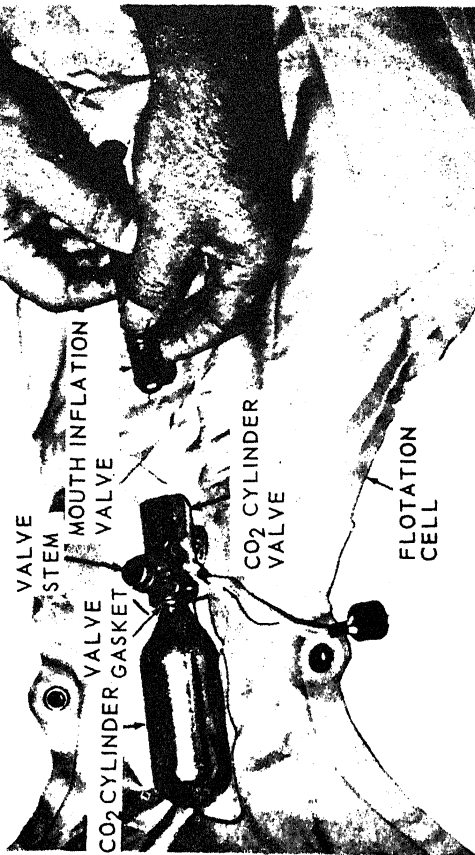


Figure 2-7. Mouth inflation valve.

b. Cells must be completely deflated to prevent the remaining gas from expanding at high altitudes, which may force the containers open, also, completely deflated cells are easier to pack.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE

CHECKS AND SERVICES (PMCS)

3-1. General

To insure that the type B-7 life preserver is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed as described in paragraph 3-2. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the life preserver will be noted for future correction to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and short-

comings will be recorded together with the corrective action taken on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) at the earliest possible opportunity.

3-2. Preventive Maintenance Checks and Services

Refer to table 3-1 for a tabulated listing of the operator's periodic (daily and weekly) preventive maintenance checks and services.

Table 3-1. Preventive Maintenance Checks and Services

Item Number	Interval				B Before operation		A After operation		M Monthly	
	Operator		Org.		D During operation		W Weekly		Q Quarterly	
	Daily		W		Item to be inspected		Procedure		Reference	
	B	D	A	W	M	Q				
1	X						B-7 Preserver	Inspect container for rips, tears, broken thread, damaged hardware, worn or torn straps, and oil or grease.	Para 3-4	

Section II. MAINTENANCE PROCEDURES

3-3. General

Repairs will be accomplished only by qualified personnel. Responsibility for submission of life preservers for periodic inspection and tests, whenever in use, rests with the individual to whom the preserver is assigned.

WARNING

Condemn life preservers if any doubt of their serviceability exists.

3-4. Inspection and Replacement

Inspect the container for rips, tears, broken thread, damaged hardware, worn or torn straps, and oil or grease.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

4-1. Inspecting the Life Preserver

Inspect life preservers in service prior to use and every 90 or 120 days thereafter. If the preserver flotation cells (fig. 2-7) are four years of age or older, inspect the preserver every 90 days; if the cells are less than four years old, inspect the preserver every 120 days. At least once yearly, inflate a percentage of preservers undergoing inspection with CO₂ to insure proper functioning of the CO₂ inflation system. Do not inflate the same preserver with CO₂ more than once each year since repeated CO₂ inflation may cause leaks in the cell fabric.

4-2. Inspection Procedure (90-120-Day Inspection)

To perform these inspections, remove the flotation cells (fig. 1-5) from the containers, and visually inspect the containers for loose stitching, oil, and grease spots. Perform a leakage test and visual inspection of the flotation cells as follows: recording room temperature at the start of the test.

WARNING

Do not inflate flotation cells rapidly.

a. Attach the mechanical inflation system to the mouth inflation valve (fig. 2-7). Be sure the CO₂ valve discharge lever (fig. 4-1) is in operating position. Install an empty CO₂ cylinder in the inflator to prevent leakage.

b. Inflate the cells, through the mouth inflation valve, with oil and moisture-free regulated low pressure air to a pressure of 2 psi, and let stand for a minimum of 15 minutes. After this 15-minute period readjust the pressure to 2 psi if necessary. When the flotation cells are inflated, apply pressure to each side of the cell so as to place the rubber under a slight strain. Inspect the cell to make sure the rubber is firmly molded and has not begun to split or separate. Condemn cells showing signs of splitting or separating.

WARNING

Do not submerge the mouth inflation valve in water or allow water to enter the flotation cell.

c. Keep the cells inflated for a minimum of 12 hours. Record the room temperature and cell pressure at this time. For each 1 degree rise in temperature, add 0.031 psi to the final pressure reading. For each 1 degree drop in temperature, subtract 0.031 from the final pressure reading. Cells having a corrected pressure of not less than 1.0 psi are satisfactory for use. If cells show a marked decrease in psi, reinflate to 2 psi and check for leaks. If leaks cannot be located, coat with a soap solution or submerge in a water tank and observe clearly for bubbles.

d. Remove the cylinder and deflate the cells after they have passed the inflation test. Check the cylinder valve for proper operation and make sure gaskets (fig. 2-7) are installed. Return the valve discharge lever (fig. 4-1) to the closed position.

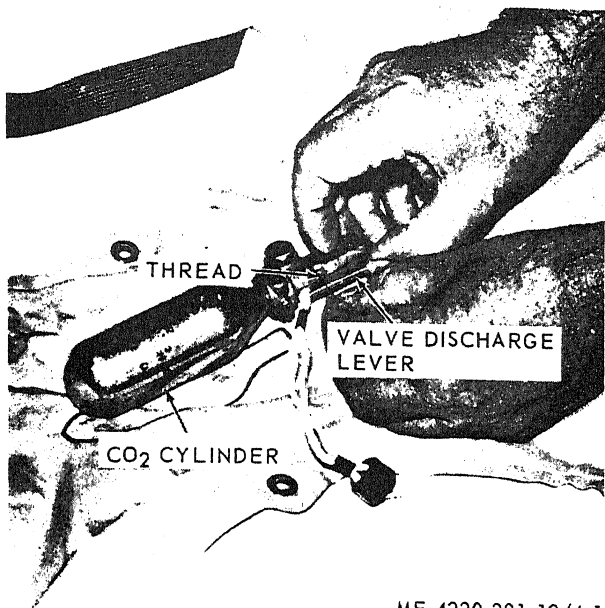
e. Check CO₂ cylinder weight before reinstallation. Scales calibrated in grams may be used for weight-checking the cylinders. Remove from service and condemn cylinders weighing less than the gross weight marked on the cylinder.

f. Upon completion of the periodic inspection and test, mark the inspection date on each cell.

Make legible markings in 1/8- to 1/4-inch letters, and locate the numbers near the grommets where the cell is attached to the container. If the CO₂ inspection has been performed, add "CO₂ INSP."

g. At least once a year, from preservers undergoing inspection, inflate random samples with CO₂ to insure proper functioning of the CO₂ inflation system. Do not inflate more than 5 percent of the total number of preservers being inspected. If any sample preserver fails the CO₂ inflation inspection, inflate all the preservers with CO₂ and inspect them.

h. Deflate the preservers that have been CO₂ inflated, and leakage-test them as outlined in *c* above. When performing the CO₂ inflation tests, check the inspection dates to make sure the preservers undergoing CO₂ inflation testing have not been CO₂ inflated within one year.



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Figure 4-1. Securing the valve discharge lever to the valve head.

Section II. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

4-3. General

No special tools, equipment, or repair parts are issued with or authorized for the life preserver.

4-4. Maintenance Supplies

For maintenance supplies used in servicing and repair, refer to table 4-1 below:

Table 4-1. Maintenance Supplies

Item	PSN	Reference		Remarks
		Figure No.	Paragraph No.	
SEALING COM- POUND, 8 oz. tube MIL-S-7916	8030-985-2350			Valve threads
THREAD, COTTON, 60 Polished finish, Directional twist, 3-ply, Ticket #3, 1775 yds. per spool MIL-T-5660, Style A Type II	8310-248-9732	4-1	4-8	Cylinder valve lever to valve head
or THREAD, COTTON, NATURAL, Polished finish, Directional twist, 3-ply, Ticket #3,	8310-194-4156	4-2	4-8	Container flaps

Table 4-1. Maintenance Supplies—Continued

Item	FSN	Reference		Remarks
		Figure No.	Paragraph No.	
1775 yds per spool, MIL-T-5660, Style A, Type II GRAPHITE, COLLAIDAL, Nontoxic, 12-oz. spray dispenser can, MIL-G-26548	9150-282-7407		4-8	Mouth inflation valve threads and seat

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-5. General

To insure that the life preserver is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed as described in paragraph 4-6. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the preserver will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded together with the corrective action taken on DA Form 2404 at the earliest possible opportunity.

4-6. Preventive Maintenance Checks and Services

Table 4-2 contains a listing of the minimum inspection requirements for preventive maintenance checks and services. This table indicates, by an

X in the appropriate column, when the inspection should be performed.

Section IV. MAINTENANCE OF LIFE PRESERVER

4-7. General

Maintenance of the life preserver is limited to cleaning and servicing, cylinder replacement, flotation cell replacement, thread replacement on container flaps and cylinders, and restitching of the container and harness.

Table 4-2. Preventive Maintenance Checks and Services

Item Number	Interval				B Before operation		A After operation		M-Monthly Q-Quarterly	
	Operator		Org.		1) During operation		W-Weekly			
	Daily		M		Item to be inspected		Procedure		Reference	
	B	D	A	W						
1					Carbon dioxide (CO ₂) cylinder		Inspect the discharge lever for freedom of operation; insure that piercing pin can puncture the cylinder sealing cap. Inspect the valve to insure that the lever swivels freely. Weigh each cylinder (cylinder should not weigh less than the gross weight marked on it). Lubricate with powered graphite.		4-8 4-2 4-8	

Table 4-2. Preventive Maintenance Checks and Services—Continued

Item Number	Interval				B-Before operation D-During operation	A-After operation		M-Monthly Q-Quarterly	
	Operator		Org.	W-Weekly		Procedure			
							Daily		
	B	D	A						W
				90/ 120 Days	Item to be inspected		Reference		
2					X	Container	Inspect the container for snagged or chafed areas, broken stitches, and oil and grease. Inspect hardware for rust or broken parts.	4-2	
3					X	Mouth inflation valve	Inspect the valve for sticking. Lubricate with powdered graphite.	4-8	
4					X	Flotation cells	Inspect inflated cells for leaks; cells must maintain air pressure (2 psi) for at least 12 hours.	4-2	

4-8. Cleaning and Servicing the Life Preserver

a. Cleaning.

(1) Rinse thoroughly in clean water and dry all preservers exposed to salt water. While drying, the cells will remain inflated and will have the cylinders attached; hand the containers separately to dry.

(2) Wash soiled preservers in a mild soap and warm water solution. A soft brush may be used but care should be taken not to damage the fabric.

(3) After washing, thoroughly air-dry the preserver.

(4) Repack the preservers, using talc dust to prevent adhesion and chafing of the material.

b. Servicing.

CAUTION

Extreme care should be taken when inserting or removing the CO₂ cylinder to prevent the sealant from reaching and blocking the inside of the valve.

(1) For cylinder valve assemblies (fig. 2-7) having no set screw to secure the CO₂ cylinder, apply thread sealant to cylinder threads after they have been engaged from one to two full turns. After applying the sealant, hand-tighten the cylinders and remove all excess sealant.

(2) When a CO₂ cylinder is replaced, secure the valve discharge lever (fig. 4-1) to the valve

head with #3 cord, cotton thread; also, make sure the piercing pin can puncture the cylinder sealing cap.

(3) Secure the container flaps (fig. 4-2) with #3 cord, cotton thread, and tie the thread with a surgeon's knot and a locking knot.

(4) Wipe the mouth inflation valve (fig. 2-7) clean, and carefully apply powdered graphite at the valve threads and seat.

(5) Apply powdered graphite to cylinder valves (fig. 2-7) that do not operate freely.

4-9. CO₂ Cylinder

a. Removal and Replacement. Refer to figure 2-7 and remove the CO₂ cylinder from the cylinder valve by turning the cylinder counterclockwise. Replace an unserviceable cylinder with a serviceable like item.

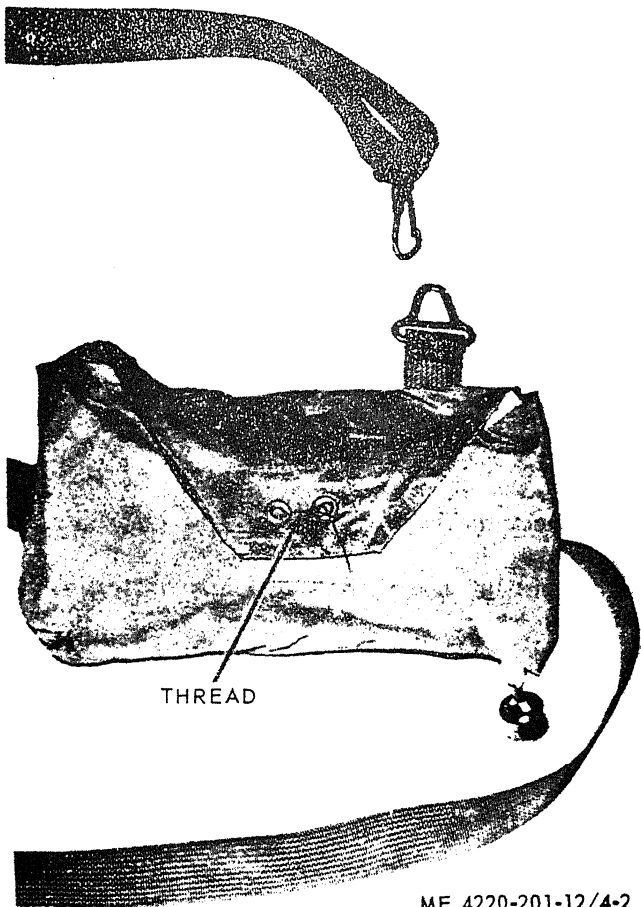
b. Installation. Reverse the procedure in *a* above.

4-10. Container

Replace rusty or broken hardware. Replace damaged webbing, patch small tears, and restitch torn seams. For replacement and repair instructions, refer to TM 10-269.

4-11. Flotation Cell

Replace defective flotation cells (fig. 1-4). To determine whether the cell is defective, refer to paragraph 4-2.



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Figure 4-2. Container flaps secured with thread.

4-12. Unserviceable Preservers

Unserviceable preservers beyond the above repairs will be condemned and tagged as condemned property. Serviceable parts such as cylinders, etc., will be removed and retained locally as spares or returned to stock.

Section V. PACKING PROCEDURES

4-13. General

To insure adequate control and quality packing of the B-7 life preserver, selected personnel will be assigned as pack-in-process inspectors to accomplish the following:

- a.* Weigh the CO₂ cylinders.
- b.* Properly mark the flotation cells.
- c.* Inspect the pack, flotation cells, and mouth inflation valves.
- d.* Correctly tighten and properly install CO₂ cylinders.
- e.* Check the safety ties and location of cords upon completion of packing.

WARNING

Make sure the preserver is thoroughly dry before packing.

4-14. Packing Procedures

- a.* Check the flotation cells for proper markings (para 4-2*f*).

b. Check the mouth inflation valve (fig. 2-7) to insure that threads are not damaged and that there are no obstructions in the valve opening.

c. Insert the cylinder into the cylinder valve on the deflated flotation cell (fig. 4-3) and tighten firmly by hand. Make sure the valve stem gaskets are serviceable and the valve stem is tight. On life preservers having a set screw, be sure the set screw is tightened.

d. Make a safety tie on the valve discharge lever (fig. 4-1) with one turn of #3 cord cotton thread, using a surgeon's knot and a locking knot.

e. Slide the cylinder into the cylinder pocket (fig. 1-5). Be sure each cell marked "left" or "right" is matched with a container having the same marking.

f. Adjust the mouth inflation valve to the closed position and insert the valve into the valve retaining sleeve (fig. 4-4).

g. Hook the container snap through the flotation cell grommet (fig. 4-5).

h. Fold the cell to a size equal to that of the cell container; begin at the narrower section of the cell. Pack the folded cell into the container.

i. Close the container bottom (fig. 4-6) and top (fig. 4-7) flaps and tie with one turn of #3 cord cotton thread, using surgeon's knot and a locking knot.

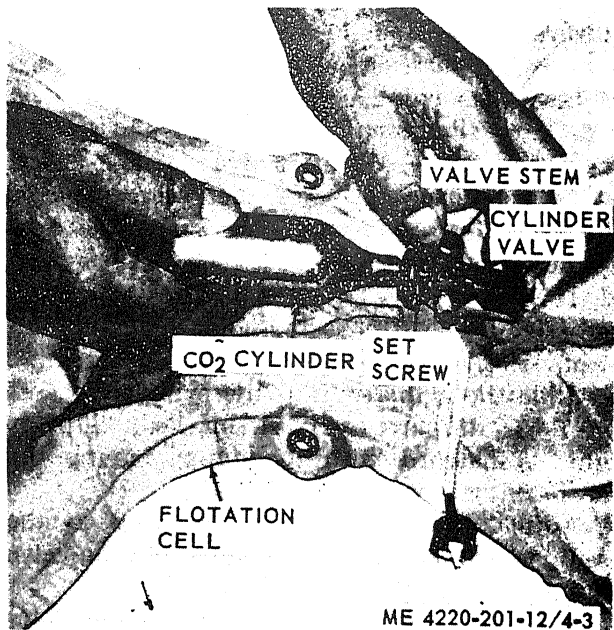


Figure 4-3. Inserting CO₂ cylinder into cylinder valve.

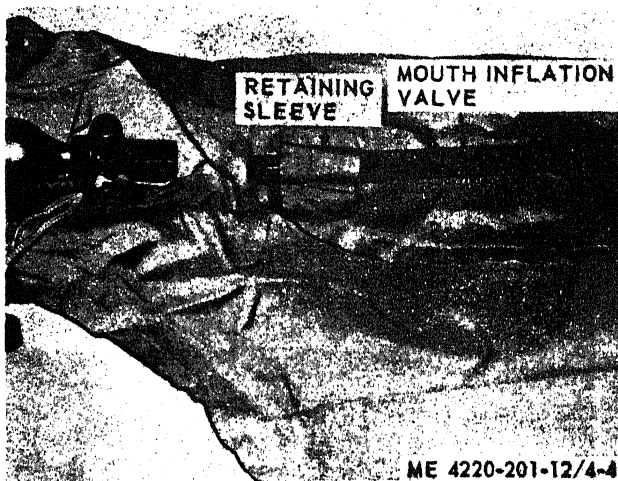


Figure 4-4. Mouth inflation valve secured in retaining sleeve.

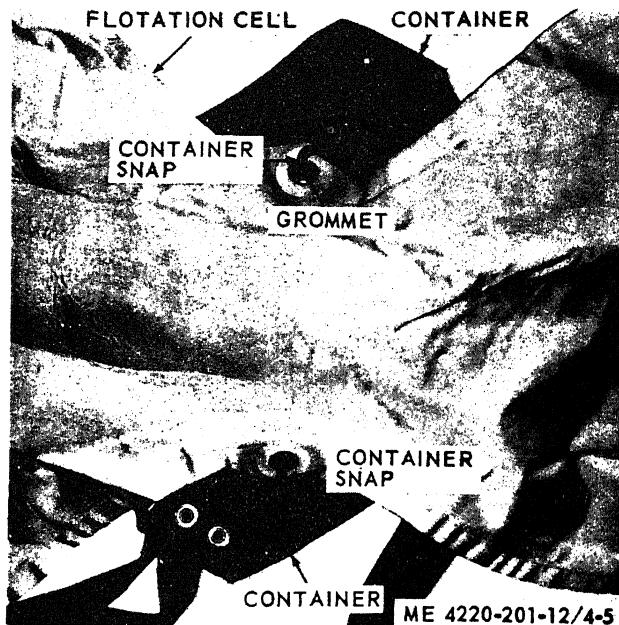


Figure 4-5. Flotation cell attached to container.

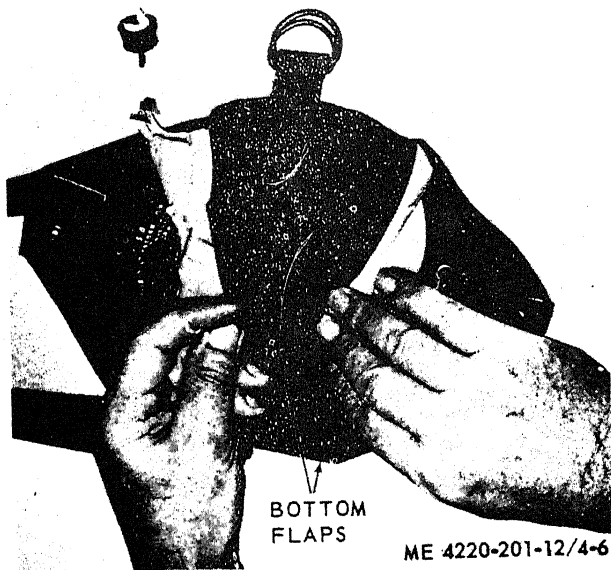


Figure 4-6. Securing container bottom flaps.

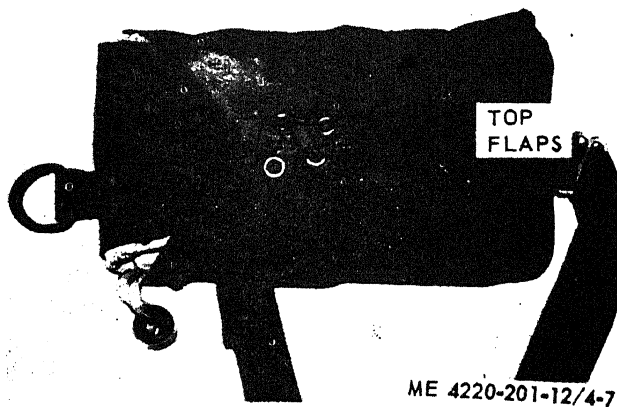


Figure 4-7. Securing container top flaps.

CHAPTER 5

DESTRUCTION OF TYPE B-7 LIFE PRESERVER TO PREVENT ENEMY USE

5-1. General

The authority for ordering the destruction of equipment is to be vested in the divisional and higher commanders, who may delegate authority to subordinate commanders when the situation requires it.

5-2. Mechanical Means

a. Flotation Cells. Rip or tear holes in the flotation cells by any means available.

b. CO₂ Cylinder. Pull the activating cord to render the cylinder inoperative.

5-3. Fire

Saturate the preservers with gasoline, oil, or diesel fuel and ignite.

APPENDIX A

REFERENCES

- | | |
|--------|---|
| 10-269 | General Repair for Canvas and
Webbing |
| 38-750 | Army Maintenance Management
System (TAMMS) |

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance level.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III, Special Tools and Equipment. Not applicable.

d. Section IV contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance function.

B-2. Explanation of Columns in Section II

a. *Group Number, Column (1).* The assembly group is a numerical group assigned to each as-

sembly in a top down breakdown sequence. The applicable assembly groups are listed on the MAC in disassembly sequence beginning with the first assembly removed in a top down disassembly sequence.

b. Assembly Group, Column (2). This column contains a brief description of the components of each assembly group.

c. Maintenance Functions, Column (3). This column lists the various maintenance functions (A through K). The lowest maintenance category authorized to perform these functions is indicated by a symbol in the appropriate column. The symbol designations for the various maintenance categories are as follows:

- C—Operator or crew
- O—Organizational maintenance
- F—Direct support maintenance
- H—General support maintenance
- D—Depot maintenance

The maintenance functions are defined as follows:

- A—*Inspect*: To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.
- B—*Test*: To verify serviceability and to detect electrical or mechanical failure by use of test equipment.
- C—*Service*: To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements such as painting and lubricating, be defined separately, they may be so listed.

- D—*Adjust*: To rectify to the extent necessary to bring into proper operating range.
- E—*Align*: To adjust specified variable elements of an item to bring to optimum performance.
- F—*Calibrate*: To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.
- G—*Install*: To set up for use in an operational environment such as an emplacement, site, or vehicle.
- H—*Replace*: To replace unserviceable items with serviceable like items.
- I—*Repair*: Those maintenance operations necessary to restore an item to serviceable condition through correction of material damage or a specific failure. Repair may be accomplished at each category of maintenance.
- J—*Overhaul*: Normally, the highest degree of maintenance performed by the Army in order to minimize time work in process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.
- K—*Rebuild*: The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at

the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

d. Tools and Equipment, Column (4). This column is provided for referencing by code the special tools and test equipment, required to perform the maintenance functions (sec III). Not applicable.

e. Remarks, Column (5). This column is provided for referencing by code the remarks (sec IV) pertinent to the maintenance functions.

B-3. Explanation of Columns in Section IV

a. Reference Code. This column consists of two letters separated by a dash, both of which are references to section II. The first letter references column 5 and the second letter references a maintenance function, column 3, A through K.

b. Remarks. This column lists information pertinent to the maintenance function being performed, as indicated on the MAC, section II.

Section IV. REMARKS

Reference Code	Remarks
A-A B-B C-A, B, C	Daily inspection Weight cylinder 90/120-day inspection

By Order of the Secretary of the Army:

Official: W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

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**TM 5-4220-201-12 LIFE PRESERVER, UNDERARM, PARACHUTIST,
TYPE B-7, CO. INFLATED—1970**